

## MULTIMEDIA IN THE CLASSROOM: TAPPING INTO AN ADOLESCENT'S CULTURAL LITERACY

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Research suggests music is an ingrained component of adolescent culture. Taking into consideration the media-centric world in which students grow up, a prototype software program was designed to engage middle school students in active listening exercises. This included listening to musical genres to which they may not have been receptive in the past. Through a variety of multimedia strategies students were given opportunities to listen to music, think about music, discuss music and create music in an audio-visual context that is a natural extension of their existence. Students from three inner city classes participated in this study, including two classes of bilingual students considered to be at risk. It was discovered that incorporating music and media from popular culture served to validate these students' lived experiences. This approach created an environment (a) where students were more willing to share ideas with classmates and teachers, (b) that encouraged student to student and student to teacher collaboration, and (c) which allowed for students to derive benefits of student centered learning. With few exceptions, the students in all three classes began to think about music differently.

There are many factors influencing the lives of our children beyond the world of home and school. Popular culture sets trends that inform adolescents' lives in terms of their fashion, social, and musical choices that define who they are within their peer group. An issue at the forefront of music teacher educators' discussions is whether music and other media from popular culture should be embraced in schools or not. If music educators veer from the more traditional view of incorporating musical examples from either Western Art music or indigenous folk music, are they really "dumbing down" the curriculum or are they merely taking a leap into a more culturally relevant domain for students?

By providing musical experiences reflective of contemporary life, teachers afford students opportunities for meaning-making which "involves situating encounters with the world in their appropriate cultural contexts in order to know 'what they are about'" (Bruner, 1996, p. 3). As suggested by Pogonowski (2001), "If students listen and perform musical monuments only from the past, they develop a curatorial view of music, apotheosizing the past without regard for the present" (p.27). One can make the case that rather than dumbing down the music curriculum, music teachers who use pop music may contribute to student cognitive and emotional development. My experiences in music classrooms suggest that coupling pop music with technology based instruction piques student curiosity, engages them in musical thinking, teaches to the standards, and perhaps encourages students to listen to Western Art Music with open minds. Popular culture in the class-

room, while capitalizing on students' interests, particularly with regard to music and film, might serve as a gateway into instruction.

Incorporating popular culture and multimedia technology in the music classroom can be especially effective in middle school. If one were to step into a middle school classroom and begin a discussion about the latest movies, television shows, and music, it would become evident that these students are steeped in a form of literacy I refer to as "adolescent cultural literacy." For the most part, today's adolescents grow up in a media-centric culture. Including these other forms of knowing in school settings may assist children in achieving a form of literacy that plays a central role in contemporary society while maintaining relevance to their nonschool lives—in effect validating, not negating, their lived experiences.

Music and movies are ingrained components of adolescent culture. Csikszentmihalyi and Larson (1984) sum it up, stating that "music is now considered to be part of teenage metabolism" (p. 69). According to Epstein (1994), "rock music has played a central role in defining youth culture for the past 35 years through its confrontational and antagonistic stance against adult values" (p. xvii). Erickson (1968) believed that constant movement is a defining characteristic of an adolescent's unrest and exuberance. He posited that motion pictures are appealing because they provide the quick thrills of speed, sex, and violence without the viewer ever having to actually make an effort, either physically or intellectually (p. 244).

Adolescence may be conceived of as a nonstage where children do not have a place in society that is appreciated or approved of by the adult community at large (Nightingale & Wolverson, 1993). Yet, adolescents highly value belonging to a community (Erickson, 1968). Adolescence is a time when finding a group to join is of paramount importance (Dimitriadis, 2001; Erickson, 1968; Fine, 1986; Friedenberg, 1964; Moje, 2000; Nightingale & Wolverson, 1993). Adolescents are happiest and most motivated during times occupied with peers (Csikszentmihalyi & Larsen, 1984).

Music is tied to how adolescents define themselves and their friends. North and Hargreaves (1999) found that adolescents respond more favorably to others who prefer the same music. McClary (1991) believes that music puts us in touch with our private emotions and in conjunction with other media, helps to shape our identity (p.53). Berry (1994), Dimitriadis (2001), and Moje (2000) emphasize the fact that rap music plays an important role in terms of empowering low income disenfranchised ethnic youth and aids in establishing positive identities. Yet all too often the message for many adolescents in public school is that what they know through their lived experiences is basically irrelevant (Fine, 1986). Fine interviewed ninth-graders at a New York City high school to determine the influencing factors that contribute to the high dropout rate among minority students. Fine suggested that public schools tend to reproduce the various agents of stratification that exist in society. She found that many of the public high schools in New York City are organized according to racial stereotypes, leaving little room for minority input, and creating a sense of disempowerment.

Yet there were individual teachers who created opportunities for critical thinking among students by inviting discussions and controversial ideas, thus keeping the students engaged.

### *Picture This!*

A prototype software program, *Picture this! © 1997: An Interactive Listening Environment for Middle School General Music*, was designed to embrace the adolescent perspective (Greher, 2002), provide richer educational experiences, engage adolescents in listening to a variety of musical styles and encourage peer group interaction. I sought to incorporate adolescent cultural literacy by delivering pop cultural artifacts along with more traditional music by means of the computer. The premise behind the software was to have students experiment with adding music to film.

In this context, the student is placed in the position of having to think and make decisions in much the same manner as a film composer or music supervisor. The objective was to create a context that would stimulate students to think the way a composer might, thereby creating opportunities for analytical listening, critical thinking, creative exploration, and evaluation of one's own work as well as the works of others. Students would discern the narrative of the film from strictly visual cues. They would experience how different moods, rhythms, and melodies affect the pacing and feel of a film and perhaps think about how a soundtrack can affect a film's meaning. The process would incorporate a number of the national standards for music learning.

Since most classrooms have a limited number of computers, the program was designed with group work in mind. Working in groups should tap into the social nature of adolescents. In a teacher directed class listening exercise, only a handful of students might respond to the teacher's questions, but a hypermedia approach can allow all students to participate. Groups can proceed at their own pace and listen to a musical example or watch a film clip as many times as they want. They can discuss their opinions with each other and experiment with various options to determine which choice might work best for them. Rather than developing listening skills as an isolated learning event, experiencing the composer's role in this manner embeds the listening skill activity in a real world context so that "understanding and experience are in constant interaction" (Lave & Wenger, 1991, p. 51). The students should be encouraged to draw on their own lived experiences and their intuitions in conjunction with the materials being presented to them.

Another goal of this software program was to help develop literacy skills. Composers dating back to the Renaissance have explored the narrative and dramatic potential of music (McClary, 1991), and many contemporary film composers suggest that much of their craft is centered around how well they can communicate narratives, ideas, or emotions through their music (Schelle, 1999). An important literacy skill is to understand that words take

on new meanings in different situations and as Brown, Collins et al. (1989) indicate, it is not enough to rely on a dictionary's definition of a word, since language use is context dependent. As William T. Hanks points out, "... language use entails multiple participatory skills, and is one of the most basic modes of access to interaction in social life" (Lave & Wenger, 1991, p. 22).

### Research Questions

The following questions served as a framework to guide this research:

1. Would this approach create an environment for active participation and a willingness to listen to a variety of musical styles? If so, how?
2. Would the use of this software program promote and support student-to-student and student-to-teacher collaboration and allow students to derive benefits from student centered learning?
3. How would this program work in helping infuse classes with music related problem-solving strategies without overtaxing teachers whom might not be completely comfortable with technology?
4. Would it be possible to design this program in such a way that supports an interdisciplinary approach to the curriculum while encouraging the development of literacy skills?

### The Software and its Design

*Picture this!* was developed on the multimedia platform, *Oracle Media Objects*, which allows the programmer to add several tracks of audio as well as *QuickTime* movie files to images and text. With this authoring platform, one may add events and buttons and create simple actions, animations, and interactivity. More advanced sequences of events can be created through the program's scripting language. It afforded me the ability to create a popup card for definitions of musical terminology and a popup notepad for students to register their thoughts, take notes, and create scenarios for what might be taking place in the films. During a pilot study the original software had more of a random access design and I observed students randomly clicking through the music and film without much listening or watching. For this study, I opted for a more linear design so that each piece of music was introduced one at a time, rather than all at once (which seemed to distract the student's listening focus in the pilot). After each piece of music was introduced, it was made available on subsequent screens to insure multiple plays of that piece before introducing a new piece. Another solution to the click-through dilemma was the addition of question boxes that appeared when the arrow for changing screens was clicked. A series of question

boxes appeared before students viewed the next screen. Should the students not answer a question, an error message appeared reminding them to do so. The error messages were informal and nonthreatening with teen friendly reminders and smiley faces. The students' responses were recorded in a database card that was hidden from view.

*Picture this!* contained three instructional units designed for this study: an Introduction Unit, Screening Room 1, and Screening Room 2. In each unit students first watched a film clip without sound. Then four pieces of music were introduced sequentially. After all four pieces of music were played, students had the option of listening to each piece with the film to see which came the closest to their expectations based on mood, pacing, and any plot line they had developed. They had to answer questions about the music and/or film with each screen change. The students could keep notes about what they saw on the notepad and discuss their thoughts with their group members. The program then asked them to choose which music track worked best for their purposes. In keeping with the more open-ended instructional approach they were not asked to base their decision on which music they thought the director used.

After completing each unit, the students would create their own music to one of the film clips in the unit. These compositions were videotaped, captured, and inserted into the program for the students to listen to, analyze, and choose which piece they felt worked best. At the end of the unit they heard the piece of music that was actually used.

In the Intro Unit, the goal was to show students how music can affect one's perception of what is taking place. A film clip was shown with a very serene piece of music followed by questions regarding the mood of the film clip. In a subsequent screen, the same film clip was shown with different music to change students' awareness of what was happening in that scene. The second section of this unit included a fairly ambiguous film clip where students had to decide what might be taking place and choose the piece of music they felt was most appropriate.

Screening Room 1 contained three film clips and four pieces of music. Though the strategy was set up so that each of the four pieces of music actually worked with each of the three film clips, the "twist" to this strategy is that the three film clips had the same piece of music in common. Screening Room 2 also had a twist to it. In this case the director went against expectations by choosing pre-existing music from a 20<sup>th</sup> century American composer. Because of what was occurring on screen, an adolescent might assume the director would have chosen an urban score based on hip-hop or rap music.

## Method

A multi-site case study was undertaken, consisting of three classes of sixth- and seventh-grade students who were chosen from two inner city Manhattan middle schools. Ethnically and economically, the makeup of the

student population of the two schools mirrored each other. The students were mostly from low income Hispanic families and were in one class that was described by the teachers and administrators as being low interest and low achieving. Another class from the same school was considered high interest and low achieving, and the third class from a different school was described as high interest and high achieving. It was not the intent of this study to compare the different groups, but rather to explore to what extent the program was flexible enough to allow teachers multiple modes with which to expand upon the strategies set up by the software program. I felt that this mix of classes would provide an opportunity to discover to what extent the program was creating too little, or too great a challenge for this age group as a whole.

For identification purpose each class was given a name. The *TechNotables* consisted of 16 sixth-grade students, nine girls and seven boys, ages 11 and 12, from a math, science and technology magnet middle school. I met with this class twice a week for one hour for 12 weeks as part of their humanities enrichment cycle. The *TechNotables* were considered by their teachers to be high achievers and each had received a laptop as part of their school's mission. For this research project, they worked in groups of four to a laptop. There was no formal music program at this school; however, there was an after school music program, and there were district wide weekend music classes for interested students. The *TechNotables* worked on all three units of the program.

The other two classes involved in this research were in a school that housed five mini schools. The bilingual mini school was chosen due to its involvement with the arts integration program with which I was involved. This particular arts integration program was a professional development program aimed at teachers of at-risk learners that linked literacy development with the arts. Before the research began at this school I met with the liaison for this arts integration program to explain the software program and its reliance on considerable reading and writing. She was one of the teachers whose class would be involved in this study. Though I was prepared to have the program translated into Spanish, she thought the English-only version would be beneficial for the students and did not think it would pose a problem for the study. She designated two classes that she thought would be stimulated and engaged by this hypermedia approach. I met with each class once a week for 40 minutes, for 12 weeks. Since we met only once a week, these classes completed only the Introduction and Screening Room 2 units.

One combined seventh- and eighth-grade class, the *VidKids*, consisted of 24 students, nine girls and 15 boys ranging in age from 11 to 15. This group of students was thought to be academically motivated but performing poorly on standardized tests due to difficulties with language acquisition. The majority of the students in this class had been in this country a year or less. The Teaching Artist from the arts integration program had been working with them for several weeks and thought they were an active and inquisitive group. The class was divided into six groups with four students in

each group. Due to the differences in language abilities among the various members of the class, the classroom teacher agreed to set up the groups with at least one strong reader in each group. I paused often to allow the classroom teacher or her aide to translate. There were many lively class discussions with a group of highly inquisitive students in two languages.

The other class in this school, the *CyberKids*, consisted of 22 students, eight girls and 14 boys, who were in a combined seventh- and eighth-grade class ranging in age from 12 to 15. All these students had behavioral problems and were described by school officials as apathetic toward school. With regard to his impressions of the *CyberKids*, the Teaching Artist commented:

The students didn't make eye contact, nor did they seem curious about my being introduced to them, or even about the prospects of making music. They seemed suspicious. Perhaps they thought I would teach them about MY music and not theirs, or that the class (and your project) was too good to be true.

Two classroom teachers were present each week: the students' homeroom and social studies teachers. The *CyberKids* in general were more proficient in English, though the teachers indicated that there was resistance to learning to read and write by students not wanting to be perceived as smart, since that was not considered "cool" among this group of students. Though most of the students in this class spoke English, it was still necessary for the Teaching Artist or me to pause often to allow the classroom teachers to translate our comments for the handful of students who spoke little English. I was told by the school's administration that these students were mistakenly placed in this class with students who were more proficient in English, rather than being placed in a class with students who were just learning English.

The primary sources of data were field notes based on my observations and experiences with each of the classes. In addition to the classroom teachers in both schools, I was working closely with the Teaching Artist from the arts integration program with whom I shared my observations informally after each class and also through a written questionnaire. Since we were both part of the same arts integration program he could assess whether or not this software's approach was consistent with the philosophy of our organization. In addition to the Teaching Artist, all the classroom teachers involved in this research gave continual informal verbal feedback during and after the classes and answered a written questionnaire toward the end of the project (see the Appendix). Though my perspective is at the forefront of this research, the voices of the students and participating teachers play pivotal roles. I cannot emphasize enough the importance of the teachers' opinions regarding this program's use in the classroom.

It is essential for educators to create opportunities for adolescent students so these students feel that their opinions are valued (Fine, 1986). With this in mind, the students were advised that they were part of a research

project and their role was to assist me in the design process, letting me know what they liked and what they didn't like, find mistakes (which they did quite often), and make suggestions. Opportunities were provided within the context of the software program through their notepad comments and their answers to the questions that went onto the software's data card. There were always classroom discussions after each unit, and follow-up questions pertaining to each unit of instruction. These questions were originally posted on a password protected Web site I had set up for the study, where their comments would be sent back to me in e-mail form. This approach was undertaken in an attempt to appear less formal and test-like than a paper and pencil questionnaire. Several weeks into the study, after receiving just a few e-mails from only those students who had Internet access from home, I discovered that each school's Internet filters prevented the e-mails from being sent. Therefore, most students ended up submitting their responses with a paper questionnaire.

As part of the login procedure there were two interest surveys, which served no other purpose than to help provide a quick "snapshot" of who the students were. One survey asked for their ages, gender, whether they had formal music training, whether they sang or played instruments, and what (if any) performing groups they participated in. The other interest survey pertained to things they did for entertainment, such as the kinds of music they listened to, the TV shows they watched, and the types of video games they played. To help fine-tune this instructional approach, there also was an online Likert scale attitude survey (administered in two parts, Surveys A and B, see Table 1) for students to express their opinions regarding what they liked and did not like about the program. All the responses were entered into an online database, which was not affected by any of the schools' filters. It should be noted that only the TechNotables and CyberKids completed these surveys online. The VidKids did not have much experience with computers, as they and their teacher had trouble with the login procedure. Since there was no additional time built in to the study for me to work with them on this problem, they completed their surveys on paper.

The students' musical compositions were videotaped and digitized for the purpose of student reflection. They could watch their compositions played back to the film, analyze their work, and discuss what they would do differently. The students' written responses, which were saved on the software program's data cards and popup notepads, along with the recorded compositions, served as vehicles for the teachers to evaluate the student's understanding. All the data from the data cards, as well as the attitude survey responses and the students' and teachers' questionnaire responses were transferred to Excel spreadsheets for coding and analysis. The notepad responses were collected by group and copied to Word documents for easier referral. The multi-faceted input from the various participants, the "multiple perspectives," as it were, provided a rich data pool for analysis.

The students completed the interest and Likert survey responses and questionnaires individually. Since the data card and notepad responses from



the software program were completed by groups of students, each group chose a name, which they then used to log into the program for later identification of their work. The group names ranged from those sounding like gang tags, such as *CMM2001*, to cultural pride names, such as *Los Dominicanos*, to names that made references to a favorite musical artist or group as in *QTStuff*, or a TV show such as *Southpark*, to types of imagery, attitudes or feelings such as *Unity*. But most of all, the names gave each group their own identity (Greher, 2002).

## Results

“We need music to think,” is a sentiment expressed by several students in this study. It is all about music, which is one of their interests. In researching the effects of using *Picture this!* in the classroom, the goal had been to explore those conditions that might facilitate engagement among the adolescent population using artifacts from the culture of the adolescent, as well as whether or not an open-ended approach to educational software, as opposed to a skill and drill based application, is supportive of those conditions.

The following categories for analysis evolved through the literature regarding adolescents, the software data and questionnaires, and my observations of how the students interacted with the program, the teachers, and each other. The first three research questions, due to their inter-related nature as they pertain to the students, were addressed by the following: (a) validation of ideas, interests, opinions and emotion; (b) adolescent cultural literacy; (c) the social dimension and cooperative learning; and (d) competency as demonstrated through problem solving. The fourth research question, which pertains to the teachers’ perspectives, was addressed with regard to the following: interdisciplinary approach to curricular goals, computers, interactivity and interaction, and perceived student benefits.

### *Validation of Ideas, Interests, Opinions and Emotion*

In terms of validation of ideas, interests, opinions and emotion using *Picture this!* (Greher, 2002) in the classrooms, the message was conveyed to the students that their opinions and experiences mattered. This idea was corroborated by many of the students as well as the participating teachers. As a TechNotable’s student stated in response to one of the unit follow-up questions: “I thought that this project would be fun because we were able to express our feelings about different things.” Another student wrote, “I found that it was an interesting way to listen to music because you also had graphics and best of all something to do with the music not just listen to it.” A female student from the same class answered, “When I first used the *Picture this!* program I was really amazed in how music can express so much. ;-).” One of the VidKid’s student’s first impressions of this program was, “. . . this is great! Cool!;” and another wrote, “I liked the program because of the design at the beginning.” In response to whether or not they thought this

was an interesting way to listen to music, students commented, "Yes, because after you hear the music you have to say what it sounds like," and "Yes, because you learn why sounds are different."

Though this program initially attracted student attention, it may not have sustained their interests for very long had there been no room to express their opinions in our class discussions or within the program itself. One student from the TechNotables thought there could have been more of their own music. He stated that:

Do you know what I and in my opinion, everyone else would like to see. A little more popular music. You know, music from artists such as Nelly, R. Kelly, Joe, Lil' Bow Wow, etc. It would make the program a little more flavorful and will have more kicks out of it.

The idea that the students could also control the outcome seemed to be a positive factor. One of the CyberKids—responding to what he liked about the program—stated, ". . . because we are allowed to choose any type of music we want—like hip-hop, jazz, or rap." In some instances they even left comments on the notepads about what they thought could use improvement, such as an entry from one group of CyberKids who were initially indifferent. They wrote, "We think that it is a good way to see if music goes to a film. We think that there should be a bigger screen." They wanted to let me know what they thought about the program. These were students who initially responded to my questions with "You don't really want to know what we think," but now they were freely telling me what they thought.

There were many instances where the responses to certain statements in the attitude survey were consistent across all of the classes (see Table 1). For instance, the students found this software program relatively easy to use (Question 2,  $M = 4.0$ ,  $SD = 0.8$ ). Across all classes there was a slight majority of students (Question 3,  $M = 3.3$ ,  $SD = 1.3$ ) who had never really thought about how the use of music can change a film's mood before working on this program. All the classes were fairly positive in that they liked trying to guess which group created a certain piece of music (Question 27,  $M = 3.6$ ,  $SD = 1.1$ ). They did not always guess correctly, but as was observed by all the teachers, this aspect of the program heightened their focus. When they made their final choice regarding which student created compositions worked best with the film, their responses were fairly thoughtful in that they chose the pieces they felt worked best rather than automatically choosing their own compositions.

When responding to the attitude survey, all classes were fairly positive about being able to listen to the music as much as they wanted (Question 7,  $M = 3.9$ ,  $SD = 1$ ). All the groups clearly did not like watching the films without sound (Question 16,  $M = 2.6$ ,  $SD = 1.2$ ). They all liked creating music to go with the films (Question 15,  $M = 4.5$ ,  $SD = 0.6$ ). The TechNotables ( $M = 4.1$ ,  $SD = 0.9$ ) and the VidKids ( $M = 4.4$ ,  $SD = 0.5$ ) both liked being able to view their compositions with the films (Question 21). Regarding

Table 1  
Results for Attitude Surveys A and B.

Survey A	Tech-Notables		CyberKids		VidKids		All Groups	
	M	SD	M	SD	M	SD	M	SD
1. I found this computer program to be an interesting way to listen to music.	3.9	1.0	4.0	0.5	3.8	1.2	3.9	1.0
2. I thought this computer program was easy to use.	4.0	0.6	3.9	0.9	4.0	0.8	4.0	0.8
3. Before taking this class, I never really thought about how music can change a film's mood.	3.1	1.6	3.6	1.1	3.3	1.1	3.3	1.3
4. I liked hearing all the different types of music.	4.0	1.0	3.4	1.2	4.2	0.9	3.9	1.1
5. It was hard to figure out how to work the computer program.	4.1	0.9	3.6	1.0	3.6	1.1	3.8	1.0
6. It was cool putting the different pieces of music to the films.	3.7	1.3	4.1	1.1	0	0.6	2.6	1.1
7. I liked being able to listen to the music as much as I wanted.	3.8	1.1	3.9	0.9	3.9	0.8	3.9	1.0
8. I really liked the notepad feature.	3.4	1.2	2.6	1.1	2.8	1.7	2.9	1.4
9. I would rather just listen to the music without the films.	3.7	0.9	3.1	1.3	4.0	1.1	3.6	1.1
10. Because of this class I'm starting to think about music differently.	3.4	1.4	3.1	1.1	3.8	0.7	3.4	1.1
11. I liked listening to music I had never heard before.	3.8	0.9	2.5	0.9	3.7	1.4	3.3	1.2
12. I thought it was cool being able to work in groups and discuss the music and films.	4.5	0.5	3.5	1.0	4.1	0.7	4.0	0.8
13. I saw no point to the notepad feature.	2.7	1.2	3.0	1.0	3.3	1.2	3.0	1.2
14. I would have liked to work on the computer program by myself.	3.0	1.7	2.8	1.5	1.7	1.4	2.5	1.7
15. It was cool creating our own music to go with the film.	4.4	0.7	4.4	0.5	4.8	0.4	4.5	0.6

## Survey B

16. I liked watching the films without any sound.	2.8	1.0	2.5	1.3	2.4	1.2	2.6	1.2
17. Our group used the musical glossary often.	2.8	1.5	2.9	0.6	3.4	1.0	3.0	1.1
18. I didn't find this computer program all that interesting.	4.2	1.0	3.3	0.8	3.5	1.0	3.7	1.0
19. Before using this computer program, I never thought about using music to tell a story.	3.4	1.2	2.9	1.1	3.7	0.8	3.3	1.1
20. After using this program, I'm not interested in learning more about music.	4.2	1.1	3.4	1.0	2.9	1.4	3.5	1.3
21. I liked being able to see our musical pieces with the films.	4.1	0.9	3.1	0.9	4.4	0.5	3.9	1.0
22. Answering the questions in the program really got me to think about what I was hearing.	4.2	0.6	2.6	1.2	3.5	0.7	3.4	1.1
23. It was interesting to hear the music created by the other groups.	4.5	0.5	3.8	1.1	3.8	0.7	4.0	0.9
24. I didn't enjoy creating music to go with the films.	4.5	0.7	3.3	1.1	3.3	1.2	3.7	1.2
25. It was interesting to hear the music that was actually used in the films.	4.4	0.5	3.5	0.5	3.9	0.5	3.9	0.6
26. I thought it was boring to watch the film without sound.	3.0	1.4	2.0	0.5	1.9	0.7	2.3	1.1
27. I liked trying to guess which group created which piece of music.	3.8	1.1	3.3	1.0	3.6	1.2	3.6	1.1
28. This computer program has gotten me interested in learning more about music.	4.0	1.1	3.0	0.9	3.7	0.5	3.6	0.9
29. I'm not thinking any differently about music after using this program.	3.8	1.1	2.1	0.9	3.0	0.8	3.0	1.1
30. I was only interested in hearing the music created by my group.	3.9	1.3	3.5	1.1	3.5	1.4	3.6	1.3

Note. 5 = Strongly Agree, 4 = Agree, 3 = No Opinion, 2 = Disagree, 1 = Strongly Disagree

their interest in learning more about music as a result of this software program (Question 28), the overall response from the CyberKids was neutral ( $M = 3.0$ ,  $SD = 0.9$ ), whereas the TechNotables ( $M = 4.0$ ,  $SD = 1.1$ ) and VidKids ( $M = 3.7$ ,  $SD = 0.5$ ) were more positive.

As the survey indicates, most groups disliked the notepad feature (Question 8,  $M = 2.9$ ,  $SD = 1.4$ ). For the most part they thought this feature was a nuisance, though there were exceptions in each class. For instance, one group of female students from the CyberKids class rarely entered into class discussions, yet they eagerly kept a running commentary on their observations in their notepad. Another group from the VidKids worked very slowly and meticulously. Though they never made it to the end of each unit, their notepad entries indicated enough of what they were thinking to get a sense of their level of understanding. This would seem to support the need for multiple forms of classroom assessment.

#### *Adolescent cultural literacy*

Regarding adolescent cultural literacy, it was observed that in order to explain their thoughts, in many instances students would make references to movies, cartoons, commercials, and music from popular culture. For instance, all three classes thought the *Mars* movement from Holst's *The Planets* was from the movie *Star Wars*. Both the VidKids and CyberKids thought a lighthearted sounding track from the *Superman* soundtrack was from *Willy Wonka and the Chocolate Factory*. In one listening exercise, a student suggested that the music had a medieval quality and most of the students collectively agreed that it reminded them of the movie *Robin Hood*. They were not referring to the actual music created during the medieval period; they were, however, referring to a style of music that generally accompanies films and video games based on medieval times. In an instance where a student took a basketball from her locker to use in her musical composition, I understood that she was making a reference to a popular *Nike* commercial that used sampled basketball sounds for the music track. On the surface these comments and actions might have appeared to be "off-topic" or irrelevant, perhaps leading to dismissal by some teachers. In all three classes these types of answers were examples of students showing their understanding of what they were either hearing or being asked, but in a form of cultural shorthand that can instantly convey images and/or meanings.

#### *The Social Dimension and Cooperative Learning*

The social dimension was observed often during the course of this research. The Teaching Artist, classroom teacher, and I observed a group of CyberKids girls who were generally shyer than the other group, helping some of the boys in a neighboring group with their translations. The teacher noted, "This was the only time where students translated to other students within the groups." In all three classes, I observed many discussions taking place within the groups regarding their decisions both with the software and in the music making sessions. One of the TechNotables had remarked about

enjoying the computer based listening because he liked being able to discuss the music with his group mates. He felt these discussions made the listening exercise more interesting. During one of the Screening Room 2 sessions, one VidKids group had started the session on Film B, but at some point when I went to check in on them, they were almost at the beginning of the program. A student explained to me that since one of their group members was absent the previous class, they decided to go back to the beginning to take her through it.

#### *Competency as Demonstrated Through Problem Solving*

Adolescents are concerned with demonstrating competence (Erickson, 1968; Friedenberg, 1964). In this study, the problem solving activities were generally music based and allowed multiple forms of expression where all the students could participate at levels that were comfortable for them. The TechNotables also exhibited instances of computer based problem solving. Within the first week they had figured out the file path needed to open the stack they were working on. Toward the end of the study some of the groups in the CyberKids class were attempting to do this as well.

As a consequence of the music based problem solving activities, the students were exposed to, and often even listened carefully to, a wide variety of music, which was one of the goals of this program. They were analyzing, making decisions, and discussing the rationale behind their decisions, corresponding to Content Standard 6 of the National Standards for Arts Education (Consortium, 1994). In the music making activities, the students were able to determine the parameters according to their interests and levels of expertise. They had to listen carefully to each other, focus on the film for tempo and transition cues, and make musical decisions. Upon playback of their pieces there were opportunities for them to express their opinions about each group's compositions—as well as their own group's compositions—in terms of what worked and what didn't work, which is in line with Content Standard 7 (Consortium, 1994). The first composition attempts for most of the CyberKids groups were fairly static, with little textural or rhythmic variation. It did not appear as though they had made any attempts to match the music to the picture. Allowing them to view their work back in the software program gave them a risk-free environment to reflect on their own work. They were fairly critical of themselves. Their second attempt at creating music was much more positive. Oddly enough, they were not discouraged by their first experience. Since we, as the teachers, never passed judgment on their previous work, their motivation this time was intrinsically driven. They no longer ignored the film and they incorporated rhythmic, textural, and dynamic variations. They had a musical problem to solve, but how they went about solving it was completely up to them. It started to become a source of pride for each of the groups not only to see what they could accomplish, but also how they could outdo each other.

In looking at the data card responses and notepad comments for all the groups, what became apparent to me was that there was a great deal of

thinking taking place in all of the classes, the major difference being the level with which each class could articulate their ideas. In general, as the Teaching Artist observed in his questionnaire, “They were reflective—trying to figure out what they were seeing and what the mood was, for example, or trying to build consensus on an answer.”

#### *Interdisciplinary Approach to Curricular Goals*

Regarding an interdisciplinary objective, in the VidKids class the teacher kept referring to the fact that the students were learning how different words could have multiple meanings based on how they were used in a sentence. This comment confirmed the idea that language acquisition can be aided by providing students a meaningful context. As was discovered with some of their data card responses, there were many times when they were writing their answers in correct “dictionary” English, though they were not necessarily written in appropriate conversational English. On several occasions this teacher pointed out that the explorations of moods through media helped the students explore more descriptive language.

#### *Computers, Interactivity, and Interaction*

Students were given opportunities to listen to music, think about music, discuss music, and create music in an audio-visual context that is a natural extension of their existence. As one of the CyberKids’ teachers observed regarding the use of computers:

In the very beginning most students were somewhat reluctant to participate; however, with the introduction of laptops there was a complete turn-around of participation in that every student was motivated to participate in the program. The music seemed to be the motivating factor.

When the Teaching Artist, who initially described this group as passive, was asked if he noticed any behavioral or attitudinal changes in the students once technology was introduced, he commented,

Right away. There was an immediate spark of interest. Students in the older class no longer pretended to be bored . . . I was reminded of Maxine Greene’s term, “wide-awakeness.”

One of the CyberKids’ teachers said the class was “Highly motivated, willing to learn relatively new technology.” Students began to think about music from other vantage points as well as build on their shared experiences. As the Teaching Artist suggests,

Another benefit was the students didn’t consider this work—it was like play. They were doing many things they loved—working closely with their friends, watching and talking about movies, using technology and writing music.

### *Perceived Student Benefits*

In terms of the benefits of this type of approach and how it fits with his curriculum, the TechNotable's teacher commented that it is "very consistent with what we are trying to achieve here." He later stated that

. . . it gives them an opportunity to create pieces themselves that mirror the mainstream media productions that have such a prominent place in their everyday lives—it brings the "real world" and school closer together.

One of the teacher's of the VidKids had this to say:

Yes, they learn to appreciate music and different sounds better and to pay attention better to individuals. . . . They have taken their work seriously. They are engaged and worked together. . . . They feel proud and make comments on their own music and how they could improve them.

### Discussion

The purpose of this program's design was to develop listening skills in a manner and context that is relevant to the adolescent in a form that would integrate easily into an existing curriculum. As was observed by the participating teachers, the students were eager to participate. The students worked well together in their groups and in some instances across groups. They were becoming supportive of each other's work. Each instructional unit incorporated musical terminology and listening exercises, as well as storytelling and language arts, along with opportunities for the explorations of motion and emotion. The results indicate that we were successful in meeting the objectives of the study and they point out why the program was successful with these students.

The inclusion of pop cultural artifacts within the instructional units and the software's notepad feature provided fairly open ended opportunities for creating written interpretations of the film that were based on the characters, the emotion, or the action of the various films being viewed. The students, for the most part, were positively engaged in all the software related writing activities, listening exercises and music making activities. In one such instance to augment the software's instructional unit, there was an in-class activity where the students were given the task of interpreting a poem and connecting it to a particular piece of music and a particular film clip they had viewed in the software program. In fact, one group of girls who was extremely moved by the poem found emotional similarities between the poem and one of the pieces of music to which we had listened. As Greene (1995) would suggest, they were placed in the position of being "meaning makers, as persons engaged in constructing and reconstructing



realities” through multiple perspectives (p. 131). The resulting musical compositions based on their interpretations of what they were seeing were always expressive and imaginative.

The teachers appreciated the way in which their students were engaged in learning. The students actively participated in listening activities that exposed them to a variety of musical genres, including music they might not have been openly receptive to hearing in a more traditional context. In Unit 2, all the students in all three classes were surprised by the choice of music that was actually used in the film. This led to some lively discussions regarding the music, which they all felt should have been rap or hip-hop. In the process, we explored several rationales for the director’s decision and learned a great deal about the composer, the director, and our own cultural assumptions.

This study suggests that adolescents for the most part possess musical instincts that may not conform to adult expectations and sensibilities. It is therefore important for teachers to understand the adolescent’s world so that we may fully appreciate their interests and their musical perspective—which may be quite different from our adult view. It is hoped that this research helps to underscore the fact that middle school classrooms need not be apathetic environments, nor should they be music-free environments, either.

Based on what developed through the course of this research, perhaps educators and policy makers may come to appreciate the role that general music classes can play. Musical experiences within the context of school can have educational benefits for all students, including students who are considered at risk. Music should not be just for the gifted and talented. Given the vast wealth of information at our disposal and the multitude of media diversions to which our students are exposed, it would be shortsighted to think that just presenting information because we believe students should know it, is enough. By keeping the students’ interests in mind, one can actually create a need for them to want to explore more, listen further, and broaden their thinking. By infusing middle school classrooms with music and multimedia that incorporate popular culture, it might be possible for educators to create those moments where what we think students should do and learn intersects with what the students may actually want to do and learn.

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### Music and Films Used in the Project

#### *Introduction Unit*

Film A. *Jaws* (1975), directed by Steven Spielberg, MCA/Universal Home Video, Universal Pictures (USA).

Track A. *La Mer* by Claude Debussy, Vladimer Ashkenazy and the Cleveland Orchestra, London Records.

Track B. *Main Title* from *Jaws* soundtrack by John Williams, MCA.

Film B. *Murder on the Orient Express* (1974), directed by Sidney Lumet, Paramount Home Video, Paramount Pictures.

Track A. *Main Titles* from the *Bladerunner* soundtrack by Vangelis, Atlantic Records.

Track B. *The Robot Acution* from the *Star Wars* soundtrack by John Williams and the London Symphony Orchestra, 20<sup>th</sup> Century Fox Records.

Track C. Overture to *Die Fledermaus* from J. Strauss: *Die Fledermaus*, BELLA VOCE (NET).

Track D. *Vertigo* from *Torn Curtain: The Classic Film Music of Bernard Herrmann*, Silva Screen Records.

#### *Screening Room 1*

Film A. *True Lies* (1994), directed by James Cameron, FoxVideo, 20th Century Fox.

Film B. *Schindlers List* (1993), directed by Steven Spielberg, MCA/Universal Home Video, Universal Pictures (USA).

Film C. *Scent of a Woman* (1992), directed by Martin Brest, MCA/Universal Home Video, Universal Pictures (USA).

Track A. *Blues* from *La Dolce Vita* soundtrack by Nino Rota, CAM.

Track B. *The Blue Danube* by Johann Strauss, from the *2001 A Space Odyssey* Soundtrack, WEA/Rhino.

Track C. *Two-Face Three Step* from *Batman Forever*, from the original motion picture score album by Eliot Goldenthal, Atlantic.

Track D. *Scent of a Woman: Tango (Por Una Cabeza)* by Carlos Gardel, from Itzhak Perlman's *Cinema Serenade*, Sony Classical.

#### *Screening Room 2*

Film A. *He Got Game* (1998), directed by Spike Lee, Touchstone Home Video, Buena Vista Distribution Company.

Track A. *Main Titles* from *Waterworld* soundtrack by James Newton Howard, MCA.

Track B. *Holla Holla* by Ja Rule, Uni/Def Jam.

Track C. *Hoedown* movement from Aaron Copland's *Rodeo*, London.

Track D. *Las Vegas/End Credits* from *Rainman* soundtrack by Hans Zimmer, Capitol

Film B. *He Got Game* (1998), directed by Spike Lee, Touchstone Home Video, Buena Vista Distribution Company

Track A. *Desert Chase* from *Raiders of the Lost Ark* soundtrack by John Williams, DCC Compact Classics

Track B. *Open Prairie* from A. Copland: *El Salon Mexico/Billy The Kid*, BM.

Track C. *So Ghetto* by Jay-Z, UNI/Def Jam

Track D. *The Cider House* from *The Cider House Rules* soundtrack by Rachel Portman, Sony Classical.

#### Endnote

<sup>1</sup>Now at the University of Massachusetts - Lowell

## Appendix

### QUESTIONNAIRE FOR TEACHERS

1. What subject do you normally teach?
2. Describe what a typical class session might be like.
3. Do you normally involve the students in much group work?
4. Do you normally take an interdisciplinary approach to your teaching? Explain.
5. Do you find that your students are active participants in class activities or are they more passive?
6. Do you normally include technology in your class instruction?  
Why or Why not?
7. Describe the make-up of the class that is participating in this study.
8. Please describe your observations regarding the students' involvement with the *Picture this!* Software program.
9. Please describe your observations regarding the follow-up sessions involving the students' music making.
10. Please describe your observations regarding the students' viewing their musical creations within the *Picture this!* Software program.
11. Do you see any educational benefits to using this multimedia approach to developing listening skills? Explain.
12. If all you had to do was hand a CD of *Picture this!* to the students to install on their laptops, would this be a program you might find worthwhile using in your class? Why or why not?
13. How would you describe the general attitude of the class regarding their involvement with this software program?
14. The use of the web has been used in conjunction with this software program as a means to gaining student feedback. Do you think this approach to communication with the class makes sense with this age group of students? Explain.
15. Additional Comments:

## QUESTIONS FOR THE TEACHING ARTIST

(Note. Wherever it makes sense, discuss each class separately.)

1. Describe your role in each of these particular classrooms as a Teaching Artist.
2. Describe the general atmosphere of this particular school.
3. What was your initial impression of the students in each class?
4. Would you describe them as active or passive participants? Explain per class.
5. Describe what a typical class session might be like under your direction.
6. Do you normally involve the use of multimedia technology in your sessions with the students? Explain.
7. Did the researcher's instruction, including the addition of the technology component, seem consistent with your organization's philosophy? Explain.
8. Did you notice any behavioral or attitudinal changes in the students once the researcher added the technology component to the class instruction?
9. Please describe your observations about how the students interacted with the software program *Picture this!*
10. Please describe your observations about any changes in the students' level of music listening and music making over the course of using this program?
11. Did you observe any difficulties encountered by the students while using this program? Explain.
12. Did you observe any benefits to the students of using this program? Explain.
13. Describe the teacher's reaction to having this program in her classroom.
14. Please describe your observations regarding the students' viewing their musical creations within the *Picture this!* Software program.
15. Do you see any educational benefits to using this multimedia approach to developing listening skills in a nonmusic classroom? In a General Music classroom? Explain.

16. If this were a fully operational program, with all of the initial bugs and quirks worked out and all you had to do was hand a CD of *Picture this!* to the students to install on their laptops, would this be a program you might find worthwhile using in a class of Middle School students? Why or why not?
17. How would you describe the general attitude of the class regarding their involvement with this software program?
18. Additional Comments: